



RISK TRANSFORMATION FOR 2020

*Are you ready for the new normal in
strategic risk management?*

Discussion and debate

November 2017
The Four Seasons DIFC
Dubai, UAE

ARE YOU READY FOR THE NEW NORMAL IN STRATEGIC RISK MANAGEMENT?

Over the years, organisations have made dramatic changes to their respective risk management policies. This has largely been in response to new regulations resulting from the on-going regional and global financial slowdown. These parameters included more detailed and demanding capital, leverage, liquidity and funding requirements, as well as higher standards for risk reporting.

The role of the risk function will continue to evolve underpinned by several trends that include: continuous expansive and structural regulatory reforms; rising customer expectations; evolving technology and advanced analytics; new and unfamiliar risks; as well as cost-effective measures.

Qarar is spearheading a variety of initiatives that are leading change in this area - from leveraging regulatory compliance processes for enhanced business performance, to exploiting digitalisation and real-time risk evaluation. Analytics is changing the face of credit risk as we know it, with interest and investment in advanced analytics increasing for reasons ranging from compliance and regulatory expectations, to the need to stay competitive and minimise risk-related losses.

Qarar aims to remain at the forefront of anticipating disruptive forces, assist you in your strategy, and help you to take proactive steps to not only avoid being disrupted, but also to become the disrupters in your industry. We are the region's leading decision analytics company specialising in offering consulting, decision analytics and software technology to deliver tailor-made customer management and process automation solutions.

Our subject matter expertise spans the domains of Strategy, Pricing, Credit Risk Management, Marketing and Sales Analytics. In addition, by harnessing the power of proprietary credit bureau data, we have built a tangible advantage and offer a suite of industry leading technical solutions for our clients that can unlock the true value and power of their information.

As 2020 approaches, policies are set to undergo further changes as new trends and disruptions emerge. Changing regulations and ever-evolving customer expectations, supported by advanced analytics such as machine learning, are enabling the introduction of new risk management techniques. In preparation for this, it is time to fundamentally rethink your business model and expand your portfolio insights by exploring advanced risk analytics and decisioning techniques.

This roundtable discusses the future of risk management strategies to align ourselves with the 2020 vision.

On behalf of Qarar, I would like to thank the esteemed panel and observers at the roundtable. This report produced from the roundtable, brings out the very essence of what was discussed and what we believe was the most relevant part of the event. The end objective is to create awareness among all stakeholders about future risk management strategies.

Qarar aims to remain at the forefront of anticipating disruptive forces to assist in strategy development and help organisations take proactive steps to stay in line with industry trends.

- Zaid Kamhawi
CEO, Qarar

AGENDA

- **Key Priorities for 2020**
Speaker: Zaid Kamhawi, CEO, Qarar
- **Comply and Compete, The IFRS Revolution**
Speaker: Daniel Hensel, Principal Consultant, FICO
- **Can Machine Learning Models add Value in the Credit Risk World?**
Speaker: Maqbool Dalvie, Director, Incline
- **The Role of Big Data in Transforming the Modern Risk Platform**
Speaker: Dr. Richard Harmon, Director, EMEA Financial Services, Cloudera
- **An Alternative Approach to Scoring**
Speaker: Jaycee Wolfswinkel, Sales Director, Qarar
- **The Panel**



Zaid Kamhawi

CEO



Daniel Hensel

Principal Consultant



Maqbool Dalvie

Director



Richard Harmon

Director, EMEA Financial Services



Jaycee Wolfswinkel

Sales Director



Nicolaas Westhuizen

COO



Kevin Barnaville

Discussion Influencer



CONCLUSION

Towards the close of 2017, Qarar invited seasoned executives from representative banks and finance companies operating in the United Arab Emirates, to discuss and debate key strategic credit risk issues impacting their respective businesses. To facilitate discussion, a number of key topics were presented by leading industry experts and subsequently discussed in a robust and engaging forum.

These subjects were chosen to cover a range of areas with forces impacting retail finance from a number of different angles including:

- Increased regulatory and compliance requirements (in particular IFRS9)
- Increased customer expectations, in the digital world with competitive forces driving advanced analytical and technology needs (Machine Learning)
- Ever increasing data availability, and the ability to make timely decisions - from external 'big data' to customer provided social media data

SUMMARY

The key themes resulting from the debate can be summarised as:

- Increased pace towards digitisation and meeting the demands of a new generation of customers, is causing and will continue to create disrupters and opportunities in the market.
- The credit risk function will continue to evolve, become less about the mechanics of decisioning, becoming more focused and dynamic in the analysis, measurement and reporting of market opportunities (i.e. maximising the customer value), threats; and all the while ensuring compliance.
- Sourcing and retaining key expertise and developing intellectual property in these disciplines (for example: machine learning, big data analytics, anti-fraud, blockchain) is challenging but vital for future success.
- Cost, internal (lack of) expertise and market dynamics will lead to increased use of external technology and analytical resources.

KEY THEMES AND OBSERVATIONS

- **IFRS9**
 - By far the biggest challenge of recent years for the industry.
 - As mentioned above those organisations that see this as more than compliance, fully understand the financial impact of credit decisions, can adapt the analytical and technology tools required to spur competitive advantage.
 - The ability to measure and report accurately is imperative, to demonstrate at a board level the provisions or adjustments required. This approach also requires new business processes and ways of working with risk to be aligned more closely with other corporate functions.
- **Machine Learning**
 - Is the application of artificial intelligence for systems to automatically learn without explicit programming.
 - Machine learning offers a number of advantages:
 - Better performance than traditional credit modelling techniques
 - Better discrimination between good and bad customers, thus ultimately profit
 - The models update more quickly (versus traditional methods)
 - On the negative side, there are several weaknesses:
 - The models are not easy to implement if a bank uses a legacy system
 - The process is not often well understood by bank staff and also their regulators
 - Thus Machine Learning, while it may be applied more in the marketing analytics area today, for credit risk there is some work still to be done before it can become more readily adopted.

• **Big Data**

- The continued move towards digitisation, generating huge amounts of data, offers both opportunity and challenges:
 - Financial organisations have the ability to develop more sophisticated predictive models, make timely and more effective decisions across the organisation with less risk of failure.
 - One of the key challenges is to create and support more accurate and comprehensive data, not only for enhanced decision making, but also ever increasing and changing compliance requirements
- Rapid developments in technology are enabling organisations to have a unified platform for all risk areas. One technology platform can provide unified data access, interactive querying, advanced analytics and potentially unlimited data storage and computing capacity, while also supporting more accurate compliance requirements.
- The technology now has the capability to bring together many of the elements discussed at the roundtable and take actions in real time, for example extensive data management from a variety of sources, predictive modelling (IFRS9) and machine learning.
- Predictive capabilities are vitally important, and extend to cover a number of areas including fraud detection and cyber crime.

• **Social Media Data & Scoring in Credit Risk**

- The use of social data and non-traditional data has been gaining prominence in recent times. This is driven by a number of
- factors to evaluate customer risk:
 - Increased digitisation of retail banking and financial services
 - An increased global drive for financial inclusion
 - Demographically young populations in emerging markets
 - A population at ease with sharing data - as long as they benefit
 - Less mature markets often lack traditional (credit bureau) data sources
 - Developments in technology, that have enabled access to processing of huge amount of new and often unstructured data
 - The large data volumes allow for validation of results in a relatively short time frame
- In mature markets traditional credit scoring methods and data remain best practice. However, with the advent of enhanced artificial intelligence, improved modelling, technology platforms and the whole "Fintech" arena, social and unstructured data will increasingly play a part in credit decisions in the future.
- In order to succeed, banks and lenders must demonstrate a high degree of trust with their customers. Recent events with the misuse of data from the some of the major social media players and their analytical capabilities demonstrate that goodwill can easily be lost, resulting in significant financial impact.



WHAT ARE THE KEY PRIORITIES FOR BANKS GOING INTO 2020?

The industry is facing a series of new regulations as a result of the on-going regional and global financial slowdown. It is set to undergo more changes as new trends and disruptions lie ahead. Changing regulations, ever-evolving customer expectations, supported by advanced analytics such as machine learning call for new risk-management techniques.

“Moving towards 2020, as daunting as that may sound at the moment, one can take comfort in knowing that there will not be a shortage of priorities for banks and risk professionals over the next few years,” said Zaid Kamhawi, CEO, Qarar.

Kamhawi highlighted that current market forces will favour players that take aggressive action than those who hold on to the way that things have always been done. Key trends that are currently shaping banking fall under four themes:

- 1) digital transformation;
- 2) regulation and analytics;
- 3) customer experience;
- 4) new technology.

Challenges

Digital transformation is no longer an option in this era. In order to meet customer expectations banks must have optimum digital capabilities to serve its customers and keep up with market trends. In customer experience, customer expectations are going to outpace the bank's ability to keep up and evolve. The inability to meet these expectations will run the risk of losing customers. Regulation and compliance is an area that has been and will always be something that financial institutions need to adapt to.

This relates to the fast-paced and ever evolving nature of technology. Kamhawi explained, “As for new technology, the challenge for banks is to understand and practically implement technologies

such as blockchain, AI, machine learning and big data. However, most importantly in this aspect is the need to create use cases to demonstrate to management and convince them to further invest in these technologies.”

The key themes for risk managers to take note of is instant decisioning - this is the pressure that risk professionals will constantly face in terms of automating the complete onboarding of customers and moving away from manual processes. The second theme around digital transformation and customer experience is the concept of the segment of one—this is a marketing term but Qarar feels that risk professionals will increasingly be under pressure to work with the operations team to create an individualised communication and develop the capability to push the right product at the right price and to the right customers. Thus there is a need here for risk managers to support the business.

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The main reason that banks outsource some functions is due to the lack of expertise within the organisation itself.

- Zaid Kamhawi
CEO, Qarar

In new technology, the top two that would be of most relevance to risk professionals are: big data and machine learning. With big data, more banks are trying to leverage on granule data, social media data, web browsing histories, transactional information and the challenge at this moment is the right way to manage and process this data accordingly. With machine learning, it promises to deliver more meaningful insights into customer behaviour which is mostly be used in preventing financial crime and underwriting.

Market Research

In his presentation, Kamhawi brought to light Qarar's most recent Market Pulse Series survey which gauged the most important business priorities that banks seek to align themselves to by 2020. The survey was conducted with 30 individual institutions where 80 per cent were banks and the remaining were insurance companies. Out of this, 90 per cent of the survey respondents were risk professionals.

The survey found that the three main priorities that financial institutions wish to align themselves to by 2020 is: to improve customer experience, to increase market share and to improve operational efficiency. Other concerns that the respondents had include: to introduce new products or line of business, to improve cost effectiveness, to respond to regulatory compliance, to create a competitive advantage, to expand into new country/regions, and to reduce fraud related losses.

Being in a digitally motivated environment, the top automation objective for banks according to priority at the moment is - cross selling new products, customer service, debt management, debt extension and customer on-boarding, as well as customer rewards.

Based on these findings, a deduction can be made that concerns for risk professionals in regard to cross selling new products would be engaging existing customers rather than on-boarding new customers, this may be because the on-boarding of new customers is already automated - thus not being a top priority for banks at the moment.

In the context of customer service, it is understood that risk professionals will be focusing on strategies such as limit management, limit increase and decrease as well as upsell of products. These are the areas that they seek to automate and integrate to the rest of the organisation.

Machine Learning

An interesting finding in the survey highlighted the interest in acquiring machine learning capabilities. Out of the 30 institutions that participated, only seven banks communicated that they had no interest in machine learning. This is something that bodes well for the industry as majority financial institutions are keen on using machine learning capabilities one way or another.

Over the next three years, most banks intend to apply machine learning for customer risk management. Apart from this, they also indicate interest in applying machine learning mechanisms for operational risk management, fraud identification and new business acquisition.

“Many [banks] have voiced out their interest in using machine learning technology particularly in customer scoring and fraud prevention,” said Kamhawi. In spite having already used an older model of the machine learning capability, namely the logistic regression model, to use this technology in a new context would require new algorithms and making this explainable is the key. Kamhawi points out that banks in the region typically rely on credit bureau data and government data for risk-based decisions. Although many have already expressed interest in using social media data, there are many challenges that needs to be addressed before such a medium can be utilised effectively. Some of which include: the accessibility to social media data; the type of data that should be used; and has it been proved to be predictive and valuable enough compared to traditional types of scores.

According to bank risk professionals, the three biggest challenges in deploying credit risk analytics within an organisation are - identifying the right talent for the job, the need to have an enterprise-wide analytics integration and applying new software and system solutions. In addition to these, various issues such as restructuring siloed data and regulatory systems, sourcing external structured/unstructured data and responding to regulatory and shareholder expectations, amongst others, are also the concerns in credit risk.

These issues have resulted in banks outsourcing such capabilities. “The main reason that banks outsource some functions is due to the lack of expertise within the organisation itself,” said Kamhawi.

In addition to that, outsourcing reduces costs and increases as well as clarifies the return on investments. Another determining factor for outsourcing is also because of existing third party relationships. In spite of this, the survey found that more than half of the participating banks in fact have these capabilities developed in-house.

COMPLY AND COMPETE - THE IFRS REVOLUTION

IFRS 9 is by far the biggest change to the banking industry over the last 10 to 15 years. IFRS 9 moves impairment accounting from an incurred to expected loss basis. What this means is that a bank's provisions are now based on models and forward-looking scenarios. Therefore, balancing profit and losses (P&Ls) and portfolios have become much more complex.



Daniel Hensel
Principal Consultant at FICO

“Financial institutions are currently at the stage where they need to think about the future and how to live in this 'new world,’” said Daniel Hensel, Principal Consultant at FICO.

The change will affect the financial impact of daily decision strategies, including but not limited to: originations/pricing/product structure; customer management (especially line management); growth strategies; as well as collections/recoveries.

Addressing the change

Many organisations are currently approaching it from a compliance perspective. Qarar suggests that the best way to approach it is to go over and beyond and evaluate the best way to handle a portfolio once the industry needs to operate in an IFRS 9 environment. The ability to generate various different scenarios and evaluate how these scenarios will impact provision numbers and P&Ls—these would be the key requirements going forward. Thus, being to simulate that and drive insights will develop best practises in credit risk management.

“Organisations who can plan for and mitigate these impacts will

have an advantage over those who focus only on compliance. The ability to rapidly create and execute simulations is essential for to cope with this fundamental change,” stressed Hensel. Portfolio insight gained as a result can provide the foundation for decision strategy enhancement and optimisation.

Hensel highlighted that the main challenges when transitioning to IFRS 9 impairment can be segmented to four aspects: analytics, operations, business and strategic.

From an analytics perspective, Hensel suggested that there is an increased complexity of modelling methodologies and rigour in

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The main challenges when transitioning to IFRS 9 impairment can be segmented to four aspects: analytics, operations, business and strategic.

In terms of financial risk management, institutions must ensure that a distinction is made between the actuals and the plan; annual budgets and forecasts need to be explained and outlined; proper stress testing must be done including a detailed assessment of P&Ls, liquidity and capital management.

understanding future loss expectations to comply with the new standards. Rapidly approaching deadlines imposed will impact resource-constrained teams. This means that amongst others, more analysts are required, and more data scientists are needed. On the operational side, there is an increased data dependency to produce the numbers and run calculations within an organisation's

normal working day calendars. This in turn requires computational intensity and processing efficiency requirements. Additionally, business requirements for a robust parallel run need to be set up ahead of the deadline to make switchover. Furthermore, additional on-going model and decision management burden needs to be taken into consideration to put these processes in place. There is generally a higher expectation of provision levels from a business perspective. Although this differs from one organisation to another depending on their interpretation of the IAS 39 (conservative or aggressive) - higher impairment levels are nonetheless expected. Managing expectations in the business and variability in impairment forecasts are also extremely important in justifying the level of provisions adjustment that is needed to the board. Thus, a higher degree of external scrutiny and transparency is also required to enable a smooth transition.

Strategically, because this accounting standard is to a certain degree a marriage between risk and finance, there is a need for need for collaboration across risk and finance, originations, customer management as well as collections and recovery. Centralisation of this activity for control, efficiency and consistency is also a necessity in this process.

The 'parallel run'

Initially there was a view that there would be a 12-month 'parallel run' prior to going live with IFRS 9. At this point right now, in some markets this has been reduced to six months - the timelines and scope has significantly been compressed. The objectives of a true 'parallel run' need to be clarified to ensure that this phase is not only efficient but also fruitful.

In explaining his point on the productiveness of this phase, Hensel explained, "The 'parallel run' needs to improve the modelling approach addressing any coding errors, verify model logic and refine model methodologies. The test and refine processes in the run should aim to optimise process accuracy, robustness and speed. It should also identify and address control gaps, in addition

to defining the operating model. This phase of the run must also test end-to-end reporting and governance processes, as well as ensure infrastructure and systems adequacy." In assessing financial impacts, an organisation must ensure that executives understand the drivers of provision levels and movements (MoM, IFRS 9 vs. IAS 39, actuals vs. forecast). The Day 1 estimation, on-going B/S, P&L and capital impacts across the business must also be measured. Balance sheet adjustment and improvement need to be monitored to reduce volatility in the P&L moving forward. In addition to this, an organisation should consider financial implications of existing business strategies, raise stakeholder awareness of potential impacts of the transition and optimise individual strategies in advance of the changeover. The need to link expected credit loss drivers to business decision areas is equally pertinent.

Managing IFRS 9 impairment will require new business processes and ways of working. This will be an on-going impact of the accounting standard. "In terms of financial risk management, institutions must ensure that a distinction is made between the actuals and the plan; annual budgets and forecasts need to be explained and outlined; proper stress testing must be done including a detailed assessment of P&Ls, liquidity and capital management," added Hensel. Bank governance will involve more complex processes following the implementation. Tighter change control requirements are expected as well as an additional model management burden imposed. There will be new mandatory disclosures required, auguring well with high data quality standards.

As for human resources and management, banks must nurture closer collaboration between the risk and finance departments to ensure mutual understanding and objectivity towards a unified goal. Managements must endeavour to explain the significance of strong cooperation between the two, as it is key for business efficiency. Another dimension is stakeholder education, especially regarding how IFRS 9 is changing the banking business, why and how provisions are increasing and that all parties should understand the importance of compliance and acclimatisation to a changing regulatory environment.

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Daniel Hensel
Principal Consultant at FICO

CAN MACHINE LEARNING MODELS ADD VALUE TO CREDIT RISK?



Maqbool Dalvie
Director, Incline

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programmes that can access data and use it learn for themselves.

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The general idea is to aim for the development of a type of machine learning scorecard.

There are many different variations of ML models that exist today which can be used in accordance to the required application of the model such as tree based algorithms, support vector machines, clustering models, boosted models, and several others. Out of these, the tree based models are the easiest to visualise and apply

GLM is currently the most widely used methodology for building scorecards, while Boosted Tree is an advanced tree machine learning algorithm. Comparing this side by side, with the same data used for all models tested, both ML models outperform the logistic regression model.

Machine learning models are more able to discriminate between a good and a bad account.

ML offers faster model updates as the algorithm continually appraises and upgrades itself.

Maqbool Dalvie
Director, Incline

The process of learning begins with observations or data, such as examples, direct experience, or instruction, to look for patterns in data and make better decisions in the future based on the examples that we provide. The primary aim is to allow the computers to learn automatically without human intervention or assistance and adjust actions accordingly.

Machine learning in credit risk

Machine learning (ML) models use specified algorithms to create an iterative process where the prediction error is minimised per iteration to improve the overall effectiveness of the model. According to Maqbool Dalvie, Director at Incline, to measure this, comparative parallels can be drawn between the model performances of General Logistic Models (GLM) to ML in credit risk applications. The general idea is to aim for the development of a type of machine learning scorecard.

“There are many different variations of ML models that exist today which can be used in accordance to the required application of the model such as tree based algorithms, support vector machines, clustering models, boosted models, and several others.

Out of these, the tree based models are the easiest to visualise and apply,” said Dalvie. However, it must be noted that there are two key weaknesses of ML models: 1) it is a new process that is less understood by analysts and regulators; 2) it is not easy to implement in legacy systems.

An illustration for machine learning capabilities is the surviving Titanic test. In this tree-based algorithm/model, potential survivors of Titanic are screened and eliminated through several stages based on their gender, age and number of siblings. These measures aim to suggest the likelihood of the survival of Titanic passengers.

Similarly, building a machine learning model will involve:

- 1) possession of good and useful data along with the characteristics for it prepared;
- 2) the creation of a model with specific parameters/algorithms set (the parameter set contains settings for your model which restricts its maximum tree depth and complexity) on the development sample;
- 3) subsequently, refit the model by iterating parameter sets to minimise prediction error; 4) identify the model parameter with the least prediction error and choose this as the final model.

Different models and methodologies

“GLM is currently the most widely used methodology for building scorecards, while Boosted Tree is an advanced tree machine learning algorithm. Comparing this side by side, with the same data used for all models tested, both ML models outperform the logistic regression model,” explained Dalvie. The marked increase in Gini was found to be significant whilst the performance on the holdout sample is marginally more varied as it is almost 20 per cent better than the logistic regression model.

Concluding, Dalvie said, “This indicates that the machine learning models are more able to discriminate between a good and a bad account.” The Gini co-efficient is a measure of the scorecard's ability to separate out the goods and the bad, thus the higher the Gini the better the scorecard.

The ML model (Boosted Trees) is understood to generate more monetary value than the logistic regression model (GLM). It is statistically proven to perform better and demonstrates the ability to make more money in credit risk. ML models result in better separation of the good and bad (higher Gini and KS values). It has been shown to increase the level of improvement in Gini by 20 per cent.

Additionally, Dalvie highlighted that the ML offers faster model updates as the algorithm continually appraises and upgrades itself. However, challenges to implementation still remain. They include:

- 1) As ML is a new technology, it is therefore often unfamiliar to analysts and regulators;
- 2) implementation on existing systems is much more complex as the model is an object, not a formula; and
- 3) it typically has to be executed via software such as R or Python.

This in turn can have a major impact on the profitability of a credit granting company by increasing accept rates at similar bad rates.



HOW **BIG DATA** FITS INTO THE PICTURE?



Dr. Richard Harmon
Director, EMEA
Financial Services at Cloudera

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The technology allows for more extensive risk coverage by providing a global vision and a broader outlook regarding incidents.

The best way to manage these functions is to have a unified platform for all risk workloads - the new modern risk platform. This is ideally one platform for unlimited data storage, fast processing, interactive querying, advanced analytics, high performance computing, elastic computing and unified data access.

On the regulatory side of things, a comprehensive data management platform must support more accurate and efficient compliance for standards such as CCAR, MiFID II, FRTB, IFRS-9, BCBS-239, MAD/MAR, GDPR, etc.

Dr. Richard Harmon
Director, EMEA Financial Services at Cloudera

Big data potentially plays an instrumental role in risk management for financial institutions due to more powerful predictive models, decreased reaction time, and greater effectiveness.

Big data allows for the creation of more powerful risk prediction models. The ability to access data and analyse it in real time, makes for much faster response times, which in turn helps prevent problems before they arise or keep damages to a minimum if they have already occurred.

“The technology allows for more extensive risk coverage by providing a global vision and a broader outlook regarding incidents. Additionally, big data is cost efficient and in line with risk management objectives as it enables more automated processes, more precise predictive systems, and less risk of failure,” explained Dr. Richard Harmon, Director, EMEA Financial Services at Cloudera.

Big data in risk management

In financial risk management, the usage of big data is applicable to: credit management, fraud management, integrated risk management, market and commercial loans, money laundering, and operational risk management.

To juggle these necessities, Dr. Harmon suggests, “The best way to manage these functions is to have a unified platform for all risk workloads—the new modern risk platform. This is ideally one platform for unlimited data storage, fast processing, interactive querying, advanced analytics, high-performance computing, elastic computing and unified data access.”

An enterprise platform for machine learning should feature pattern recognition capabilities to drive customer insights. This would include customer journey analytics and recommendation engine competencies. The platform should also have an element of simulation that have prescriptive analytics and stress testing to drive business insights.

Complementary to this, Dr. Harmon explained that the platform needs detection capabilities such as fraud detection and prevention, anti-money laundering and market surveillance as well as a functional cybersecurity system. Prediction abilities are also paramount to assist the institution to improve its products and services through digital transformation and alternative data usage. This would in turn increase the bank's operational efficiency. It must be noted that modern risk platforms should also be capable of expanding capabilities for enterprise risk.

“For example, on the regulatory side of things, a comprehensive data management platform must support more accurate and efficient compliance for standards such as CCAR, MiFID II, FRTB, IFRS-9, BCBS-239, MAD/MAR, GDPR, etc,” he added. The system should therefore be able to combine and ingest data from various sources and process it into different applications.

Managing data for comprehensive regulatory compliance would require a system that is able to handle real-time data ingested from diverse sources; the capability to scale this both easily and cost effectively, incorporating machine learning capabilities, a level of governance and security, while rolling out diverse analytical options for the institution. Prudent data governance practises (data lineage, data protection, data lifecycle management), is a crucial component for the whole ecosystem to function.

Taking the FRTB (Fundamental Review of the Trading Book) as an example, this new regulation entails:

- A revised internal model approach (IMA): a more rigorous supervisory model approval process at the trading desk level, more consistent identification and capitalisation of material risk factors across banks, and constraints on the capital-reducing effects of hedging and diversification.
- A revised standardised approach (SA): to make SA sufficiently risk-sensitive to serve as a credible fall-back for, as well as a floor to, the IMA, while still providing an appropriate standard for banks that do not require a sophisticated treatment for market risk.
- Expected shortfall risk measure: a shift from value-at-risk (VaR) to an Expected Shortfall (ES) measure of risk under stress.
- Incorporation of the risk of market illiquidity: varying liquidity horizons (10 to 250 days) to mitigate the risk of a sudden and severe impairment of market liquidity across asset markets.
- A revised boundary between the trading book and banking book: serves to reduce incentives to arbitrage between the regulatory banking and trading books.

The FRTB impact estimates an approximately 20 times increase in historical data storage requirements and 30 times increase in computational requirements.

There are a couple of new risk metrics and tools: 1) flash crash early warning (VPIN) which is volume synchronised and delivers the probability of informed trading; 2) agent-based modelled computational simulation. Agent-based models (ABMs) consist of heterogeneous agents that are allowed to freely and randomly interact in the interests of maximising their own goals. They are uniquely able to include evolving intelligence that allows agents to learn and adjust as new information comes into the system and how the system evolves in response to this new information. ABM's are ideally suited to a model behavioural heterogeneity, and the dynamics that result from that heterogeneity. Furthermore, network complexity causes contagion risk, which cannot be modelled with traditional techniques.





Jaycee Wolfswinkel
Sales Director at Qarar

There are times when a bank has insufficient data to fairly evaluate a potential customer. This is a space where social media can come in to fill in the gap, to enhance and supplement the existing credit scoring methods sourced from credit bureau and government data.

An idea that was incepted in China, social scoring has now started to make headway in the global financial services industry. A person's digital footprint, which includes details such as online purchases, hours you spent watching films, paid bills, the number of hours a smartphone is charged, and the duration taken to respond to emails, can be constantly monitored and evaluated to judge how trustworthy a person is. Financial institutions can leverage on this technology to see the individual's score and judge whether they were eligible for financial services including mortgages, personal loans, car loans, credit cards or savings accounts.

"Banks often encounter situations where there is insufficient data to evaluate a customer. Typically, gaps such as these that can be seen in this region is with unbanked millennials that are coming into the market," said Jaycee Wolfswinkel, Sales Director at Qarar. Globally, there are two billion adults that remain unbanked. India, with 233 million unbanked individuals, accounts for 12 per cent of the world's unbanked population. In Europe alone, there are nine million unbanked millennial consumers searching for a loan every month and out of this, only 13 per cent are accepted and 20 per cent of those default.

Social media scoring

According to Wolfswinkel, social media data scoring can double the acceptance rate of this demographic without any increase in defaults. "In places with high levels of immigration such as Singapore and Dubai (64 per cent and 92 per cent foreign population respectively) we also see the need for social media data scoring in profiling foreigners."

To draw an example, LinkedIn data can be used for modelling techniques; Facebook is applicable to ascertain fraud prediction; and similarly, a combination of different social media accounts can legitimise a person's existence for know your customer (KYC) and ID verification purposes.

Wolfswinkel pointed out that there is a difference in terms of the applicability of social media data in different markets. "In emerging markets, financial data can be scarce, and its accuracy is questionable.

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Social media data scoring can double the acceptance rate of this demographic without any increase in defaults.

It must always be noted that social media data does not replace the existing model - it is to be used on top of the existing model.

Trust is the key to the usage and effectiveness of social scoring. All data provided to the social media data scoring system is based on the customer's consent and solely at their discretion.

Jaycee Wolfswinkel
Sales Director at Qarar

Therefore, social media data scoring enables lenders to make loans with greater knowledge of who they are lending to whereas in developed loan markets, social media data can serve as a top-up to traditional scoring metrics,” he explained.

The data that can be analysed from social media are typically from sources such as LinkedIn, Google, Twitter, Facebook, PayPal, mobile data from Android and IOS, bank transaction data, third party databases as well as bank and lender data. These social media sources and databases have ample information on the background of the client such as employment history, education history, skills, google activity, contacts, you tube activity, daily habits, lifestyle, followers, cell phone device and many others.

Alternative sources such as social media data are used to evaluate a potential customer which greatly improve financial inclusion due to higher approval rates, lower default rate and higher accuracy in pricing risk. Banks can also provide safer loans due to fraud detection and optimal KYC and ID verification. Social media data can also be the determining factor for a customer's credit limit.

Trust issues

“Some may question the extent of how much of these social media data should be trusted. It must always be noted that social media data does not replace the existing model—it is to be used on top of the existing model. The more data fed to the system, the more predictive it will be,” asserted Wolfswinkel.

The processes in machine learning of social media data scoring begins with software gathering, analysing historical data and new data sets. The model will then independently learn what makes a good borrower. The artificial intelligence (AI) capabilities allow the model to adapt and fine-tune itself to produce an increasingly accurate score.

Wolfswinkel also stressed that trust is the key to the usage and effectiveness of social scoring. All data provided to the social media data scoring system is based on the customer's consent and solely at their discretion. In social scoring platforms such as Friendly score, there will be no data storage of the login information. Personal data is also never repackaged for sale and is only for the use of the scoring system.





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